

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Original) An electronic clutch assembly for a lock system, the lock system having a latch and first and second rotatable spindles, one of the two spindles being operatively connected with the latch to displace the latch between first and second latch positions, the clutch assembly comprising:

a clutch coupled with the first spindle and having a connective portion engageable with the second spindle, the clutch being linearly displaceable along a first axis between a first position in which the connective portion is nonengaged with the second spindle and a second position in which the connective portion is engaged with the second spindle;

a cam displaceable generally along a second axis, the second axis extending generally perpendicularly with respect to the first axis, and configured to linearly displace the clutch between the first and second clutch positions; and

an electric actuator operatively connected with the cam and configured to linearly displace the cam along the second axis such that the clutch alternatively couples the second spindle with the first spindle and uncouples the second spindle from the first spindle.

2. (Original) The clutch assembly as recited in claim 1 wherein the first spindle is operatively connected with the latch, the second spindle is freely rotatable when the clutch is disposed in the first clutch position and the rotation of the second spindle rotatably displaces the first spindle when the clutch is disposed in the second clutch position.

3. (Original) The clutch assembly as recited in claim 1 wherein the first spindle is operatively connected with the latch and the second spindle is rotatable about the first axis while the first spindle remains generally stationary with respect to the first axis when the clutch is disposed in the first clutch position.

4. (Original) The clutch assembly as recited in claim 1 wherein the first spindle is operatively connected with the latch, the first and second spindles are each rotatable about the first axis, and the two spindles and the clutch rotate as a single unit about the first axis to displace the latch between the first and second latch positions when the clutch is disposed in the second clutch position.

5. (Original) The clutch assembly as recited in claim 1 wherein the clutch has an outer contact surface and the cam has a camming surface contactable with the clutch contact surface such that when the cam displaces along the second axis, the camming surface slides against the contact surface so as to displace the clutch between the first and second clutch positions.

6. (Original) The clutch assembly as recited in claim 1 wherein:

the clutch includes a conical body portion extending circumferentially and at least partially about the first axis, the conical portion having an angled contact surface extending between a first, most proximal position with respect to the first axis and a second, most distal position with respect to the first axis; and

the cam includes a generally wedge-shaped body portion, the wedge-shaped portion having an camming surface contactable with the clutch contact surface such that when the cam displaces along the second axis in a first direction generally toward the first axis, the camming surface slides against the clutch contact surface so as to displace the clutch from the first clutch position to the second clutch position.

7. (Original) The clutch assembly as recited in claim 6 further comprising a biasing member configured to displace the clutch from the second clutch position to the first clutch position when the cam displaces along the second axis in a second direction generally away from the first axis.

8. (Original) The clutch assembly as recited in claim 1 wherein one of the first spindle and the clutch has an opening and the other one of the first spindle and the clutch has a coupler portion slidably disposed at least partially within the opening so as to operatively connect the clutch with the first spindle.

9. (Original) The clutch assembly as recited in claim 1 further comprising a biasing member operatively connected with the clutch and configured to displace the clutch from the second clutch position and toward the first clutch position.

10. (Original) The clutch assembly as recited in claim 1 wherein the lock system further includes a housing having first and second openings and an interior space, the first spindle is rotatably disposed within the first housing opening, the second spindle is rotatably disposed within the second housing opening, and the clutch, the cam and the actuator are each disposed within the interior space.

11. (Original) The clutch assembly as recited in claim 1 wherein the first spindle is operatively connected with the latch and the second spindle has a handle portion configured for manual rotation of the second spindle, such that when the clutch is disposed in the second clutch position, manual rotation of the handle portion rotatably displaces the first spindle so as to displace the latch between the first and second latch positions.

12. (Original) The clutch assembly as recited in claim 1 further comprising:
an input device configured to generate a control signal; and
a logic circuit electrically connected with the input device and with the actuator, the logic circuit being configured to receive the control signal and to operate the actuator so as to displace the cam in response to the control signal.

13. (Original) The clutch assembly as recited in claim 1 wherein each one of the first and second spindles has an opening and the clutch includes a first shaft portion slidably disposed in the first spindle opening so as to couple the clutch with the first spindle and a second shaft portion slidably disposeable within the second spindle opening so as to releasably engage with the second spindle.

14. (Original) The clutch assembly as recited in claim 1 wherein the electric actuator is a motor having a rotatable shaft, the shaft being operably connected with the cam such that rotation of the shaft in a first direction displaces the cam generally toward the first axis and rotation of the shaft in a second direction displaces the cam generally away from the first axis.

15. (Original) An actuator assembly for a lockset including a latch movable between first and second positions, the actuator assembly comprising:

a rotatable output member configured to displace the latch between the first and second latch positions;

a rotatable input member configured for manual rotation;

a clutch coupled with the output member and having a connective portion engageable with the input member, the clutch being linearly displaceable along a first axis between a first position in which the connective portion is nonengaged with the input member and a second position in which the connective portion is engaged with the input member; and

a mechanism operatively connected with the clutch and configured to linearly displace the clutch along the first axis between the first and second clutch positions such that the clutch alternatively operatively couples the input member with the latch and uncouples the input member from the latch.

16. (Original) The actuator assembly as recited in claim 15 wherein the mechanism includes:

a cam displaceable generally along a second axis, the second axis extending generally perpendicularly with respect to the first axis, and configured to linearly displace the clutch between the first and second clutch positions; and

an electric actuator operatively connected with the cam and configured to linearly displace the cam along the second axis.

17. (Original) The actuator assembly as recited in claim 16 wherein the clutch has an outer contact surface and the cam has a camming surface contactable with the clutch contact surface such that when the cam displaces along the second axis, the camming surface slides against the contact surface so as to displace the clutch between the first and second clutch positions.

18. (Original) The actuator assembly as recited in claim 15 wherein:
the input member is rotatable about the first axis while the output member remains generally stationary with respect to the first axis when the clutch is disposed in the first clutch position; and

the input and output members are each rotatable about the first axis as a single unit to displace the latch between the first and second latch positions when the clutch is disposed in the second clutch position.

19. (Original) The actuator assembly as recited in claim 15 further comprising:
an input device configured to generate a control signal; and
a logic circuit electrically connected with the input device and with the actuator, the logic circuit being configured to receive the control signal and to operate the mechanism actuator so as to displace the clutch in response to the control signal.

20. (Original) The actuator assembly as recited in claim 15 further comprising a biasing member operatively connected with the clutch and configured to displace the clutch from the second clutch position and toward the first clutch position.

21-37. (Cancelled)